CONTRIBUTIONS FROM THE GRAY HERBARIUM OF HARVARD UNIVERSITY—NO. CLVII

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IV. NOTES ON EASTERN AMERICAN LUZULA

(Plates 961 and 962)

Luzula sudetica (Willd.) DC., var. **frigida** (Buchenau), comb. nov. *L. campestris* (L.) DC., var. *frigida* Buchenau in Oesterr. Bot. Zeitschr. xlviii. 284 (1898). *L. frigida* (Buchenau) Samuelsson in Lindm. Svensk Fanerogamfl. 161 (1918). Plate 961, figs. 7–9.

I am unable to separate specifically *Luzula campestris*, var. *frigida* or *L. frigida* and *L. sudetica* (figs. 1–6). They have the same aspect and habit, dark perianths, castaneous to blackish capsules, and seeds only 1–1.6 mm. long and tipped by a minute caruncle only 0.1–0.2 mm. long. Whereas true *L. sudetica* has the perianth 2–2.5 mm. long, with the broadly lance-ovate sepals nearly equaled or exceeded by the capsule, var. *frigida* (figs. 7–9), theoretically at least, has the perianth mostly longer, 2.2–3 mm. long, with the narrowly lance-attenuate and slender-tipped sepals clearly overtopping the capsule. The difficulty is that in too many specimens, often under the same number, transitions occur and separation becomes arbitrary. Typical *L. sudetica* extends southward in eastern America to Newfoundland and the Shickshock Mountains in the Gaspé Peninsula, Quebec. I refer the following relatively southern specimens to true L. sudetica:

Newfoundland: shelves and talus of diorite cliffs, Western Head, entrance to Bonne Bay, *Fernald, Long & Fogg*, no. 1512, as *L. campestris*, var. *alpina* Gaudin; meadow near Frenchman's Cove, Bay of Islands, *Mackenzie & Griscom*, no. 10,202, as *Juncoides multiflorum* (Ehrh.) Druce, var.; turfy slopes near the sea, Seal's Nest Island, Bay of Islands, *Fernald, Long & Fogg*, no. 180, as *L. campestris*, var. *frigida*.

The interpretation by Wiegand and me in Rhodora, xv. 42 (1913) of *Luzula campestris* var. *frigida* was a confused one, the plants of southern New Brunswick and eastern Maine being really quite different from the original Labrador material. We were misled by Buchenau's citation of *Robinson & Schrenk*, no.

85, from St. John's, Newfoundland; but a rereading shows that the Robinson & Schrenk plant was not considered by Buchenau as typical: "Ich lernte diese Form [var. *frigida*] zuerst aus Labrador kennen, wo sie mehrfach gesammelt wurde. Sehr ausgeprägt findet sie sich ferner auf . . . Alberta . . . Etwas weniger characteristisch ist die Pflanze von St. Johns auf Neufundland (R o b i n s o n und S c h r e n k, Nr. 85)." The Labrador plant which closely matches Buchenau's description is, as stated, an extreme of *L. sudetica* with more slender and elongate perianth-segments. The southernmost stations of var. *frigida* are along and near the Straits of Belle Isle in

NEWFOUNDLAND: margin of pond back of St. Anthony, *E. C. Abbe*, no. 201; turfy slopes of slaty hills, Little Quirpon, *Fernald, Gilbert & Hotchkiss*, no. 27,809; springy swale and turfy upper border of strand, Anse au Sauvages, Pistolet Bay, *Fernald, Wiegand & Long*, no. 27,810; turfy limestone barrens, Cook Point, Pistolet Bay, *Fernald & Gilbert*, no. 27,808; swamp, Flower Cove, July 28, 1920, *M. E. Priest.*

Much of the material heretofore misidentified with *Luzula campestris* var. *frigida*, including the *Robinson & Schrenk* material doubtfully cited by Buchenau, belongs to L. MULTIFLORA (Retz.) Lejeune, var. FUSCONIGRA Čelak., at least *sensu* Samuelsson in Lindman, Svensk Fanerogamfl. 161 (1918). See PLATE 962, FIGS. 4 and 5. Its seed is decidedly not that of *L. sudetica*, but is characteristic of *L. multiflora:* 1.5–2 mm. long, with a round-tipped bulbiform caruncle 0.4–0.7 mm. long. From the common and wide-spread fulvous or paler *L. multiflora* it differs in its relatively narrow leaves, slender, stiff and low (1–4 dm.) stems, dark brown to fuscous sepals (with pale margins) and dark chestnut to blackish capsules. It is northern and relatively local with us. The following specimens have been seen (distributed as *L. campestris*, var. *frigida* unless noted) of what I take to be L. MULTIFLORA var. FUSCONIGRA.

NEWFOUNDLAND: peaty limestone barrens about Flower Cove, Straits of Belle Isle, *Fernald, Long & Dunbar*, no. 26,504; boggy spots on the rocky crests, Twillingate, Notre Dame Bay, *Fernald, Wiegand & Bartram*, no. 5169: dry turf, Old Perlican, Trinity Bay, *G. S. Torrey*, no. 38; dry open turfy slopes of sandstone and arenaceous slate hills back of Carbonear, Conception Bay, *Fernald & Wiegand*, no. 5166 (dwarf, with unusually capitate inflorescences); rocky hills, St. John's, *Robinson & Schrenk*, no.

Photo. B. G. Schubert.

LUZULA SUDETICA: FIGS. 1 and 4, inflorescence, × 2; FIGS. 2 and 5, portions of spike, × 8; FIGS. 3 and 6, seed, × 10.

L. SUDETICA, var. FRIGIDA: FIG. 7, inflorescence, × 2; FIG. 8, portion of spike, × 8; FIG. 9, seed, × 10.

L. MULTIFLORA, var. CONGESTA: FIG. 10, inflorescence, × 2; FIG. 11, portion of spike, × 8; FIG. 12, seed, × 10.

85, as *L. arcuata* Meyer; by rill on seepy silicious slope of Joan Plains Hill, Bay Bulls, *Fernald, Long & Dunbar*, nos. 26,502 and 26,503, as *L. campestris*, var. *multiflora;* Spreadeagle, June 30, 1893, *Waghorne*, as *L. campestris;* dry field near sea-level, Bay of Islands, *Eames & Godfrey*, no. 5985. QUEBEC: Rivière du Loup, *Pease*, no. 2259, as *L. campestris*, var. *multiflora.* PRINCE EDWARD ISLAND: damp clearing, Morell, *Fernald & St. John*, no. 10,992, as *L. camp.*, var. *mult.* NOVA SCOTIA: wet peaty and rocky ground, Shag Harbor, *Fernald, Bissell & Linder*, no. 20,727, as *L. camp.*, var. *mult.* MAINE: turf, Tenant's Harbor, *Pease*, no. 26,067; Isle au Haut, July 8 and 10, 1920, *N. T. Kidder.* NEW HAMPSHIRE: field, Wolfeboro, *H. E. Sargent.* MASSACHUSETTS: swamp, Nantucket Island, *Bicknell*, no. 260a, unidentified. NEW YORK: low mossy meadow in rather heavy mucky soil, alt. 1840 ft., Parker's (Montague), Lewis Co., *Hotchkiss*, no. 2321; heavy rather dry meadow-soil, alt. 1800 ft., Rector (Montague), Lewis Co., *Hotchkiss*, no. 2323; heavy soil of meadow, alt. 1680 ft., northeast of Mohawk Hill (West Turin), Lewis Co., *Hotchkiss*, no. 2274.

Some material, wrongly distributed as *Luzula campestris*, var. *frigida*, differs at once from *L. multiflora* and its var. *fusconigra* in the very condensed umbel, usually with several sessile or subsessile spikes, with or without stiff rays up to 3.5 cm. long, the pale perianth 3–4 mm. long and greatly exceeding the capsule, the seeds only 1.5–1.7 mm. long and with conically tapering caruncle. This is

L. MULTIFLORA (Retz.) Lejeune, var. **acadiensis** (Fernald), comb. nov. *L. campestris*, var. *acadiensis* Fernald in RHODORA, xix. 38 (1917). Originally described from Prince Edward Island, Nova Scotia, and New Brunswick, var. *acadiensis* is now known from Newfoundland, the Gaspé Peninsula and southeastern Maine, as well. PLATE 962, FIGS. 6–8.

Although often merged with *Luzula campestris* (L.) DC. the common species across North America is abundantly distinct. *L. campestris* is a low plant with scattered tufts of narrow and very silky leaves separated by slender rhizomes and stolons up to 3 cm. long, each tuft with a usually solitary decumbent to ascending flowering stem, bearing 2–6 subglobose spikes, all but the central spike on divergent to recurving rays; the anthers two to five times as long as the filaments. In North America it is apparently native in woods and openings of the Avalon Peninsula of Newfoundland, along with scores of other typical Europeans (*Pedicularis sylvatica, Sieglingia decumbens*, etc., etc.). In 1920

the late C. E. Robbins found it naturalized in a lawn at Wareham, Massachusetts. *L. multiflora* (PLATE 962, FIGS. 1–3), on the other hand, is densely cespitose, nonstoloniferous, with numerous erect (up to 9 dm. high) flowering stems, the anthers shorter than to about equaling the filaments.

The only other variety of *Luzula multiflora* in the "Manual range" is var. CONGESTA (Thuill.) Koch, Syn. 734 (1837), based on *Juncus congestus* Thuill. Fl. Env. Paris, ed. 2, ii. 179 (1799). Var. CONGESTA (PLATE 961, FIGS. 10–12) is frequent in

NEWFOUNDLAND: Baccalieu Island, July, 1902, *Sornborger* (misidentified by Fernald & Wiegand as *L. campestris*, var. *comosa*); Whitbourne, *Fernald & Wiegand*, no. 5168 (a lax form with elongate rays, misidentified like the last); Murray's Pond, 1931, *Agnes Ayre;* Trepassey, *Fernald, Long & Dunbar*, no. 26,505 (misidentified as *L. campestris*, var. *frigida*); Port Saunders *Fernald & Wiegand*, no. 3056 (misidentified like the last); Port aux Basques, *Fernald, Long & Dunbar*, no. 26,500.

I am retaining the long familiar name *Luzula multiflora* but as starting with *Juncus multiflorus* Retzius, Fl. Scand. Prodr. ed. 2: 82 (1795), who first properly published it. Ordinarily, as in Index Kewensis, the writings of Ascherson & Graebner and of Buchenau and others, the basic *Juncus multiflorus* is cited, to quote Ascherson & Graebn. Syn. Mitteleur. Fl. ii². 523 (1904), as "*Junc. multiflorus* Ehrh. Calam. No. 127 (etwa 1791). Hoffm. Deutschl. Fl. I. 169 (1800)", with *Juncus intermedius* Thuill. Fl. Env. Paris, ed. 2: 178 (1799), *J. liniger* With. Syst. Arr. ed. 4, ii. 343 (1801) and *J. erectus* Pers. Syn. i. 386 (1805) as synonyms. So far as I can find the properly described *Juncus multiflorus* Retzius (1795) has usually come into the picture only as a negative element, for, according to Index Kewensis *J. multiflorus* Retz. " = capensis", i. e. *J. capensis* Thunb. Prod. Pl. Cap. 66 (1794). Just how, to use an American idiom, the original editors of Index Kewensis "got that way," unless a probable *Luzula campestris* got entered as *Juncus capensis*, is not clear. In fact, one soon learns to take the attempted identifications in the original volumes with much more than the conventional grain of salt; for, as in this case, every careful student of the *Juncaceae* or of the flora of The Cape of Good Hope, Ernst Meyer, Buchenau, Baker (in Flora Capensis) and others, have regularly and rightly recognized *Juncus capensis* Thunb. as a true *Juncus*, with long

and very slender, linear-subulate, glabrous leaves, naked or scapose flowering stems, and very many muticous seeds about 0.6 mm. long. It is in no wise a *Luzula*, with flat leaves, leafy stems and 3 large carunculate seeds. In describing his *Juncus multiflorus* (1795) Retzius was not accounting for the flora of the Cape of Good Hope! His Florae Scandinaviae Prodromus was, to quote his title-page, an enumeration of the plants of Sweden, Lappland, Finland and Pomerania, as well as of Denmark, Norway, Holstein, Iceland and Greenland, a large enough task without dragging in the Antipodes (especially without any mention of them). Retzius had the usual northern European species of *Juncus* (*J. acutus*, *conglomeratus*, *effusus*, *filiformis*, *trifidus* and so on to *J. biglumis* and *J. triglumis*), followed by the species which constitute *Luzula: J. vernalis* or *pilosus*, *J. parviflorus*, *J. maximus*, *J. multiflorus* (as new), *J. campestris* and *J. spicatus*. His description was clear:

> 435*. *J. multiflorus*, foliis planis nudis, culmo basi folioso, corymbo subramoso, capitulis multifloris terminalibus axillaribusque. *Juncus* Hall. St. Helv. 1329? *d*) P. sylv.

To those who know *Juncus capensis* the "Foliis planis" and "culmo basi folioso", to say nothing of its Scandinavian occurrence, might have been suggestive! In fact, Buchenau in Das Pflanzenreich correctly cites *J. multiflorus* Retzius as identical with the reputed *J. multiflorus* Ehrh. and graciously notes it as "in Ind. Kew. errore calami = *J. capensis* dicitur"—one of the cases where the pen was mightier than the brain. Furthermore, it is clear that Retzius was not basing his *Juncus multiflorus* (1795) on a reputed *J. multiflorus* Ehrh. (1791–1793[1]). Whether Ehrhart ever published such a species seems open to question. All the bibliographies, Index Kewensis, the citations by Buchenau and others, for instance, take the name back to Ehrhart, the former compendium saying, rather cryptically, under *Juncus*, "*multiflorus*, Ehrh. [Calam.]. 127; ex Hoffm. Fl. Deutschl. i. 169." Hoffm. l. c. (1800), properly publishing *J. multiflorus*, ascribed it

[1] The title-page of Ehrh. Beitr. vi. says 1791 and this date is commonly accepted. Buchenau, however, in Engler, Pflanzenr. iv[36]. 94 (1906) and elsewhere, said "ca. 1791", while von Hayek, Fl. Steierm. i. 106 and elsewhere (1908) gives the unquestioned date 1793. Schneider, too, in his Ill. Handb. Laubholzk., after citing Beitr. vi. consistently as published in 1791, said in his Nachtrag, ii. 886, "Nähreres 1793". If the exact dates of Ehrhart's different volumes have been worked out I shall welcome a reference to the publication.

to "EHRH. *gram. n.* 127", while Buchenau, in Engl. Pflanzenr. iv[36]. 91 (1906), gives the more detailed "*J. multiflorus* Ehrh., Calam., Gram. et Tripet. exsicc. (ca. 1791)." With the aid of Miss Ruth D. Sanderson, Librarian of the Gray Herbarium, I have made a long and fruitless search for any published description by Ehrhart of *J. multiflorus*. Search of Pritzel's Thesaurus and other reliable bibliographies reveals no book by him entitled either "Calam." (the title in brackets given in Index Kewensis), "gram." (the title given by Hoffmann) nor even "Calam., Gram. et Tripet. exsicc.", as cited by Buchenau. In Ehrhart's Beiträge zur Naturkunde, vi. (1791–1793) the 8th article is "Index Calamariarum, Graminum et Tripetaloidearum Linn., quas in usum Botanophilorum collegit et exsiccavit Fridericus Ehrhart, Helveto-Bernas". This, pp. 80–84, consists merely of a list of names, without descriptions, of twelve decades of the Exsiccatae, ending with no. 120 and dated October, 1790. The names of plants of Linnaeus and others of earlier date are of species already published but throughout the list are several new names of Ehrhart, all *nomina nuda* and of no nomenclatural standing until taken up and defined by subsequent authors. To this group of original *nomina nuda* belong nos. 66, *Juncus acutiflorus* Ehrh., 76, *J. obtusiflorus* Ehrh., 85, *J. glaucus* Ehrh. and 86, *J. setifolius* Ehrh.; but there is no number 127, *J. multiflorus*, the twelfth decade ending, naturally, with no. 120. Until it is is shown to be otherwise, we must infer that decades of the exsiccatae following the 12th may have been issued with names on the labels (including specimens numbered 127 and called *J. multiflorus*), but the first description of *J. multiflorus* as of Ehrhart was by Hoffmann in 1800. In the meantime, under that name and without any reference to Ehrhart, Retzius in 1795 described the New Scandinavian species which he thought might be the same as a Swiss plant of Haller. *Juncus multiflorus* Retzius (1795) apparently has the right-of-way.

The error which Buchenau charitably called a slip of the pen, by which Index Kewensis identified *Juncus multiflorus* Retz. (1795) with the South African *J. capensis* Thunb. (1794), at once intrigued some, who promptly altered names without checking the fundamental data. Thus in Bull. Torr. Bot. Cl. xxxii. 610